IDENTIFICATION

Department	Position Title	
Environment and Climate Change	Aquatic Quality Scientist	
Position Number	**Community**	**Division/Region**
23-14246	Yellowknife	Water Monitoring and Stewardship/HQ

PURPOSE OF THE POSITION

The Aquatic Quality Scientist (Scientist) implements multiple water and aquatic quality monitoring and research programs and conducts data analysis and reporting to meet the water management goals of the Department, including providing recommendations, consultations and engagement with northern communities, government agencies and academics.

SCOPE

Located in Yellowknife and reporting to the Senior Aquatic Quality Scientist (Senior Scientist) in the Water Monitoring and Stewardship Division, the Aquatic Quality Scientist is responsible for planning, designing and implementing water and aquatic monitoring and research programs in the Northwest Territories (NWT) to assess its health and variability. The incumbent is responsible for leading data collection, interpretation, and analysis including report writing and contributing to research across the NWT related to water and aquatic quality. The incumbent is knowledgeable about water and aquatic quality science and methodologies and implements multiple and diverse research and monitoring programs.

The Department of Environment and Climate Change (ECC) works to promote and support the sustainable use and development of natural resources and to protect, conserve and enhance the NWT environment for the social and economic benefit of all residents.

The Water Monitoring and Stewardship Division bears the primary roles and responsibilities related to water research and monitoring, providing advice to co-management partners, water quality and quantity data analysis and interpretation, and water stewardship and planning. The Division, in cooperation with Environment and Climate Change Canada (ECCC) and other federal and territorial departments, is responsible for collecting and interpreting information about water quality and aquatic health in the NWT. The Division works with its water partners

on a collaborative approach to water stewardship and planning in the NWT, including transboundary water management agreements.

The Northwest Territories (NWT) is the ultimate downstream jurisdiction in the Mackenzie River Basin (MRB). The MRB drains an area that consists of a fifth of Canada's land mass. It is one of the largest river basins in the world and is subject to industrial activity which has the potential to influence water flow and quality. It is experiencing the brunt of climate change as one of the nation's northern watersheds. Water is one of the basic necessities of all life. Healthy and abundant water is needed for healthy and abundant ecosystems. If water quality is exceptional, the health of fish, wildlife and all flora is preserved. For humans, good quality water is necessary for drinking and food preparation. Guidelines and standards for assessing water quality are available for water quality assessments across the globe, including Canada. To ensure the quality of NWT's water, *Northern Voices, Northern Waters: NWT Water Stewardship Strategy* (the Water Strategy) was developed and implemented. The Scientist is responsible for key aquatic quality monitoring, analysis and assessment by leading the implementation of research and monitoring programs across the NWT to facilitate a better understanding of water quality and aquatic health.

The Scientist works within a legislative and regulatory framework that includes the: *Waters Act*, NWT Water Stewardship Strategy and Action Plan, 2030 NWT Climate Change Strategic Framework and Action Plan, as well as other GNWT and ECC policies and programs, including transboundary water management agreements with neighbouring jurisdictions. The Scientist works closely with the Senior Aquatic Quality Scientist as well as other colleagues in the Division. The Scientist works collaboratively with colleagues within the Department and at times other Departments such as Municipal and Community Affairs and Health and Social Services. The incumbent occasionally works with federal scientists and experts from ECCC and Fisheries and Oceans Canada as well as with external contacts (e.g., Indigenous governments, other provinces/territories scientists and academia). The Scientist also conducts regular engagement with communities and the public because of the interest of NWT residents in water quality and aquatic ecosystem health.

The Scientist must have knowledge of scientific monitoring methods and methodologies related to water and aquatic quality assessment to lead monitoring programs and assess change in aquatic systems over time. The Scientist presents and prepares scientific and technical reports outlining the findings of water monitoring programs and aquatic health research in the NWT, which can include data reports, scientific papers, or plain language summaries.

The Scientist plays a lead role in ensuring that information collected is analyzed, interpretated and reported on to provide assurance of water quality and the health of NWT ecosystems. The Scientist regularly meets with Senior Aquatic Quality Scientist to receive assignments and provides professional advice and expertise on water quality and aquatic health for decision making.

The Scientist has significant latitude provided that best practices in data collection, research and scientific methodology are complied with while supporting the needs of NWT departments, communities, and residents.

RESPONSIBILITIES

1. **Develops and implements comprehensive and scientific water quality monitoring and aquatic health research and monitoring programs in the NWT.**
   - Develops and initiates comprehensive and scientific water quality monitoring and aquatic health research and monitoring programs in the NWT to support the NWT Water Stewardship Strategy.
   - Develops and implements research and monitoring projects to collects physical, chemical, and biological aquatic quality data and assembles existing data, often in collaboration with coordinators or external research partners, and develops a framework for analyzing and interpreting information.
   - Designs, plans and implements research and monitoring projects as both the primary investigator and as a scientific collaborator.
   - Assesses regional and local water and aquatic quality to understand evolving conditions and determine monitoring needs.
   - Develops partnerships with Indigenous governments and Indigenous organizations, co-management boards, academic institutions, and others to collect information necessary for the implementation of the NWT Water Quality Monitoring Network.
   - Manages administrative aspects of the projects, including the timely acquisition of permits and licenses of field-based projects, supervision of field staff and engaging with local communities and land managers to share information and obtain clearances.
   - Plans and leads logistically complex field-based research and monitoring projects, often in remote areas.
   - Prepares service contracts and purchase orders for environmental laboratory analyses and/or the procurement of experts.
   - Collaborates with Geographic Information System (GIS) technical staff at Aurora Research Institute and NWT Centre for Geomatics on digital field data acquisition and analysis strategies as appropriate.
   - Develops comprehensive field safety plans and protocols for research and monitoring teams and ensures they are rigorously followed.

2. **Disseminates research findings and provides information and advice to a wide range of stakeholders.**
   - Authors or co-authors reports, maps, web content, books, digital atlases, and other materials to meet objectives of the Department. Products are often of high technical quality and suitable for publication.

- Leads or assists in preparing reports on the status and trends of aquatic quality of the NWT's major water bodies, as required by programs established in the NWT, including existing long-term water monitoring sites, transboundary water monitoring sites, etc.
- Responds to inquiries about water quality and aquatic health, including preparing communication products and media responses.
- Works with the Senior Aquatic Quality Scientist to finalize and publish technical reports.
- Conducts technical reviews, contributing to environmental assessments of development projects with respect to impacts on water quality and aquatic health and advising on industry monitoring and management plans.
- Makes recommendations, provides expertise and professional advice and represents the Department on subjects related to aquatic quality in the NWT to federal/provincial/territorial working groups, project teams and committees, including the Canadian Council of Ministers of the Environment and the Mackenzie River Basin Board, as well as to other relevant committees at the multi-jurisdictional and national levels, as necessary.
- Meets with GNWT departments, industry, regulatory boards, and researchers on matters related to the collection, analysis and interpretation of NWT water quality data.
- Organizes and conducts project workshops, information sessions, and training exercises as required.
- Assembles and presents research and monitoring results at various scientific meetings and industry and environmental management conferences.
- Prepares briefing materials, policy and decision papers, and other government documents and requests for information as required.
- Conducts or contributes to community engagement sessions and outreach activities.
- Participates on local, regional, territorial and national working groups and attends meeting, forums or conferences, as appropriate.
- Develops proposals, including budgets and schedules, and occasionally prepares research funding applications.

3. Compiles, manages, interprets, and archives data collected in the NWT.

- Compiles, organizes, and archives data collected by the GNWT, partner organizations, researchers, and industry.
- Assembles data to support the analysis and interpretation of both real-time and historical aquatic quality conditions.
- Uploads data to data management databases and makes the data publicly available.
- Responds to client requests for assistance in accessing aquatic quality data and assembles requested data files from the water quality data management system
- Plans and implements data compilation and synthesis projects.
- Conducts and coordinates data recovery projects and generates data compilations for addition to the database.

- Works with partners to facilitate data compilations and interpretation, including academics, graduate students and researchers.
- Develops proposals, including budgets and schedules, for data compilation and database projects including developing contracts and memorandums of understanding.

4. Manages financial resources and procurement of goods and services.

- Contributes to divisional budgeting and operational planning exercises.
- Responsible for procurement and contributions to support monitoring and research objectives.
- Develops scope of work and deliverables as a scientific and financial authority ensuring GNWT procedures are followed.
- Evaluates monitoring networks to ensure they remain current, cost effective and necessary.

WORKING CONDITIONS

Physical Demands

The incumbent will usually work in a normal office environment with intermittent field work. In the summer field season, the incumbent will be hiking over rough terrain with a backpack and collected samples (up to 50 pounds) for eight hours per day, up to three weeks per year; will be travelling in small aircraft and helicopters for up to eight hours per day, up to three weeks per year; will be travelling in small watercraft for up to one hour per day, up to three weeks per year. In the winter field season, work involves travelling by snowmobile, work at extreme cold temperatures, and operation of one-person ice augers or other equipment.

Environmental Conditions

The incumbent will usually work in a normal office environment with intermittent field work. While in the field, the incumbent can be exposed to: rapidly changing weather and to conditions such as cold (hypothermia), intense sun (burn), wind, rain; helicopters, airplanes, ATVs, road vehicles (physical injury, hearing loss, gas/fumes); insects and insect bites; dangerous, unforeseen, uncontrolled field situations such as vehicular accidents, attack by wild animals, falls; and other accidents while on traverse (cuts, muscle sprains, broken bones, etc.). The incumbent will be exposed to these environment conditions every day up to three weeks per year.

The incumbent will be exposed to noise from helicopters, airplanes, ATVs, snowmobiles, and outboard motors as well as other equipment such as ice augers, chainsaws, firearms, and generators. The incumbent will be exposed to these noise conditions every day up to three weeks per year.

Sensory Demands

The incumbent will usually work in a normal office environment with intermittent field work.

Mental Demands

The incumbent will usually work in a normal office environment with intermittent field work. From May to August there is expectation of some field-based work where the incumbent is subject to disruption of family life due for field work in distant or remote locations. The incumbent is also responsible for the continuous management of scientific and logistical activities and safe work practices while in the field, including the prediction and mitigation of potentially hazardous situations and managing personality conflicts amongst field staff. The incumbent will be exposed to these demands every day up to three weeks per year.

The incumbent is also required to present research or work plans to scientific peers, collaborators, community groups, etc. and may attend workshops or research meetings in southern Canada two to four times per year.

From time to time the incumbent may be responsible for responding to media inquiries on water and aquatic quality monitoring and research projects, including findings.

KNOWLEDGE, SKILLS AND ABILITIES

- Knowledge of diverse and complex elements of water and aquatic quality science and assessment including statical methods and analysis.
- Knowledge of current approaches and methodologies used to monitor, assess or predict the nature and extent of changes in the aquatic environment, to collect and interpret water quality and aquatic health indices to support water management approaches and principles.
- Demonstrated knowledge of recent advances in research and analytical approaches contained in published literature, including conservation, northern ecology, aquatic health studies, ecological statistical methodologies and ecosystem assessments.
- Knowledge of current NWT water initiatives, such as the NWT Water Stewardship Strategy and Action Plan, Climate Change Strategic Framework and Action Plan, Cumulative Impact Monitoring Program and the Knowledge Agenda.
- Knowledge of the cross-cultural environment and the importance of effective communication and working relationships with Indigenous people in communities, Indigenous governments and Indigenous organizationsand other agencies.
- Knowledge of new and evolving water quality and biological collection and analysis methods,including specialized laboratory analytical methods.
- Proven analytical, critical thinking and research skills to produce information in a variety of forms to assist in water governance and decision-making related to resource management.

- Ability to produce scientific reports of high technical quality suitable for publishing in external journals or through government reports/information pieces.
- Knowledge of computer systems and commercial/specialty software applications; statistics packages; spreadsheets; databases and word processing software.
- Knowledge of arctic survival, transportation of dangerous goods, first aid, firearms, remote communications, equipment repair and navigation techniques.
- Analytical skills are required to modify methods, techniques and practices, generate independent research results and/or validate the research findings generated by others.
- Writing and verbal communication skills are essential to relaying scientific information to clients in a succinct yet detailed fashion and to interact with partners, academics, consultants, and government.
- Ability to clearly and effectively communicate scientific information in a variety of forms including visual, oral, and written formats and at an appropriate level for the respective audience.
- Ability to exercise sound judgment and diplomacy on controversial water resources management issues, human activities/development and status and trends assessments.
- Ability to coordinate many projects within strict deadlines.
- Ability to work in an autonomous, flexible, discreet, and trustworthy fashion.
- Ability and experience engaging with Indigenous governments and Indigenous organizations and local communities to determine water quality monitoring priorities and/or the dissemination of monitoring results.
- Ability to relay technical information to non-technical audiences and explain scientific principles in ways residents can understand.
- Ability to commit to actively upholding and consistently practicing personal diversity, inclusion, and cultural awareness, as well as safety and sensitivity approaches in the workplace.

Typically, the above qualifications would be attained by:

Completion of a graduate degree (M.Sc.) in environmental science with at least two (2) years of work experience in water quality and aquatic sciences, preferably working on multi-disciplinary scientific water or aquatic quality monitoring teams, and/or working in the NWT in partnership with communities or Indigenous governments and Indigenous organizations

Equivalent combinations of education and experience will be considered.

ADDITIONAL REQUIREMENTS

Position Security (check one)

☒ No criminal records check required
☐ Position of Trust – criminal records check required

☐ Highly sensitive position – requires verification of identity and a criminal records check

French language (check one if applicable)

☐ French required (must identify required level below)

Level required for this Designated Position is:

ORAL EXPRESSION AND COMPREHENSION

Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐

READING COMPREHENSION:

Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐

WRITING SKILLS:

Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐

☐ French preferred

Indigenous language: Select Language

☐ Required

☐ Preferred